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THE MAXHAM FIRM
9330 SCRANTON ROAD, SUITE 350
SAN DIEGO, CA 92121

EXAMINER	
KAO, CHIH CHENG G	

ART UNIT	PAPER NUMBER
2882	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/518,189	ZANKER, JOHANNES MARTIN	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 16 December 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 7/22/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

See paragraphs 9, 12, 23, 26, and 27.

Claim Objections

2. Claims 1-14 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and/or lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following correction(s) may obviate the objection(s): (claim 1, line 3, "the images"; deleting "the"), (claim 1, lines 5-6, "the construction"; deleting "the"), (claim 3, line 3, "the flat screened object"; deleting "flat screened"), (claim 4, line 2, "the line scanners"; deleting "the"), (claim 6, line 3, "the viewing angle"; replacing "the" with --a--), (claim 6, line 3, "the operator"; replacing "the" with --an--), (claim 7, line 2, "the 3D images"; deleting "the"), (claim 8, line 2, "the adoption"; deleting "the"), (claim 9, line 3; replacing "wherein" with --, comprising--), and (claim 12, line 2; replacing "wherein" with --, comprising--).

Claims 2-14 are objected to by virtue of their dependency. For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3-6, 8, and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claims 3 and 5, the phrase "can be" renders the claims indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

5. Claim 4 recites the limitation "the disparity map for the intensity maps" in lines 2 and 3. There is insufficient antecedent basis for "the disparity map" or for "the intensity maps" in the claim.

6. Regarding claim 4, the term "conventional" in the last line is a relative term which renders the claim indefinite. The term "conventional" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

7. Claim 6 recites the limitation "the 3D data set" in line 2. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 8 recites the limitation "the algorithms " in line 2. The antecedent basis for this limitation is unclear, since claims 1 and 7, from which claim 8 depends, both recite different "algorithms". Therefore, this claim is indefinite. Claims 12-14 are rejected for the above reason by virtue of their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 9, 10, 12, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans et al. (3-D X-ray Image Modelling - Latest Developments).

10. Regarding claims 9 and 12, Evans et al. discloses an X-ray scanning device (fig. 1) for a static or moving object (fig. 1, object under inspection), comprising an X-ray source (fig. 1, x-ray source) providing two or more X-ray beams (fig. 1, from the x-ray source), and a sensor array provided for each beam, the arrays being displaced spatially one from the other (fig. 1, linear x-ray detector arrays), a computer incorporating software adapted to calculate a third-depth dimension (pg. 184, col. 2, section titled 3-D data extraction), and a monitor (fig. 1, monitor).

Note that recitations (i.e., for use in the method according to claim 1 or claim 8, "being adapted to generate two two-dimensional images", "thereby to create a 3D image of the object", or "for displaying the 3D image") with respect to the manner in which a claimed apparatus is

intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

11. Regarding claims 10 and 13, Evans et al. teaches a conveyor belt (fig. 1, conveyor belt).

Also note that recitations (i.e., "to capture two images of the moving object to generate an intensity map and a motion map") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

12. Claims 1, 4, 5, 9, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Grodzins et al. (US 6081580).

13. Regarding claim 1, Grodzins et al. discloses a method for scanning using X-ray equipment (fig. 1) comprising the steps of projecting two X-ray beams (fig. 1, #6 and 8) towards a moving or static object (fig. 1, #10), sensing images (fig. 1, with #28 and 30) generated from the X-ray beams, necessarily detecting two spatial dimensions from the images (col. 2, line 55, with the fan beam), developing motion and intensity maps from the two spatial dimensions thereby to generate by the use of algorithms the third spatial dimension (col. 4, lines 18-52) and to provide a data set for the construction of a 3D image for display on a viewing monitor (col. 4, lines 50-53).

14. Regarding claim 4, Grodzins et al. further discloses wherein for two static images generated by line scanners (col. 2, line 55, for the fan beam), the disparity map for the intensity maps is calculated from two parallel detector arrays and converted into depth coordinates using conventional stereo-algorithms (col. 4, lines 18-52) and the fixed geometry of the X-ray equipment (fig. 2).

15. Regarding claim 5, Grodzins et al. further discloses wherein the data set is generated and comprises 3D coordinates for all visible object contours from which parallel projections in the three cardinal directions can be constructed (col. 4, lines 18-52).

16. Regarding claims 9 and 12, Grodzins et al. discloses an X-ray scanning device (fig. 1) for a static or moving object (fig. 1, #10), comprising an X-ray source (fig. 1, #2) providing two or more X-ray beams (fig. 1, #6 and 8), and a sensor array (fig. 1, #28 and 30) provided for each beam, the arrays (fig. 1, #28 and 30) being displaced spatially one from the other, a computer incorporating software adapted to calculate a third-depth dimension thereby to create a 3D image of the object (col. 4, lines 18-52), and a monitor for displaying the 3D image (col. 4, lines 50-53).

Note that recitations (i.e., for use in the method according to claim 1 or claim 8, or "being adapted to generate two two-dimensional images") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 2, 3, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grodzins et al. as applied to claims 1, 9, and 12 above, and further in view of Evans et al.

18. Regarding claim 2, Grodzins et al. discloses a method as recited above. Grodzins et al. further discloses wherein the object is carried on a conveyor (col. 1, lines 58).

However, Grodzins et al. fails to disclose a conveyor belt.

Evans et al. teaches a conveyor belt (fig. 1, conveyor belt).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method of Grodzins et al. with the conveyor belt of Evans et al., because of the following rationale. Since the Examiner finds that the prior art (i.e., Grodzins et al.) included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference, and since the Examiner finds that one of ordinary skill in the art could have combined the elements as claimed by known methods, and that in combination, each element merely would have performed the same function as it did separately, the Examiner finds that one of ordinary skill in the art would have recognized that the results of the combination were predictable. Therefore, such a claimed combination is obvious.

19. Regarding claim 3, Grodzins et al. further discloses the step of developing the third spatial dimension from moving representations of the object by calculating motion parallax map for the intensity map which can be converted into depth coordinates using the fixed geometry of the conveyor (col. 4, lines 18-52; and fig. 2).

20. Regarding claims 10 and 13, note that recitations (i.e., "to capture two images of the moving object to generate an intensity map and a motion map") with respect to the manner in which a claimed apparatus is intended to be employed do not differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

21. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grodzins et al. as applied to claim 1 above, and further in view of Murata et al. (US 5553208).

Grodzins et al. discloses a method as recited above.

However, Grodzins et al. fails to disclose wherein algorithms are provided to allow 3D images of the scanned object to be transferred into projection images.

Murata et al. teaches wherein algorithms are provided to allow 3D images of the scanned object to be transferred into projection images (col. 3, lines 48-52).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the method of Grodzins et al. as modified above with the transformation of Murata et al., since one would have been motivated to make such a modification for increasing processing speed (abstract) as shown by Murata et al.

Furthermore, since the Examiner finds that the prior art (i.e., Grodzins et al.) contained a "base" method upon which the claimed invention can be seen as an "improvement" and since the Examiner finds that the prior art (i.e., Murata et al.) contained a comparable method that was improved in the same way as the claimed invention, the Examiner thus finds that one of ordinary skill in the art could have applied the known "improvement" technique in the same way to the "base" method and the results would have been predictable to one of ordinary skill in the art. Therefore, such a claimed combination is obvious.

22. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grodzins et al. and Murata et al. as respectively applied to claims 1 and 6 above, and further in view of Ross et al. (US 6608628).

Grodzins et al. as modified above discloses or suggests a method as recited above.

However, Grodzins et al. fails to disclose wherein algorithms are provided to allow real-time rotation of the 3D data set to permit continuous manipulation for a viewing angle by an operator.

Ross et al. teaches wherein algorithms are provided to allow real-time rotation of the 3D data set to permit continuous manipulation for a viewing angle by an operator (col. 13, line 45, through col. 14, line 1).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the method of Grodzins et al. as modified above with the real-time rotation of Ross et al., since one would have been motivated to make such a modification for faster response time (col. 13, lines 53-54) as implied from Ross et al.

Furthermore, since the Examiner finds that the prior art (i.e., Grodzins et al.) contained a "base" method upon which the claimed invention can be seen as an "improvement" and since the Examiner finds that the prior art (i.e., Ross et al.) contained a comparable method that was improved in the same way as the claimed invention, the Examiner thus finds that one of ordinary skill in the art could have applied the known "improvement" technique in the same way to the "base" method and the results would have been predictable to one of ordinary skill in the art. Therefore, such a claimed combination is obvious.

23. Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grodzins et al. and Evans et al. as applied to claims 10 and 13 above, and further in view of Gupta et al. (US 4989225).

Grodzins et al. and Evans et al. disclose a device as recited above.

However, Grodzins et al. and Evans et al. fail to disclose wherein the conveyor belt is provided with markers.

Gupta et al. teaches wherein a conveyor belt is provided with markers (col. 4, lines 47-50.)

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the device of Grodzins et al. or Evans et al. with the markers of Gupta et al., since one would have been motivated to make such a modification for confirming exact locations of objects (col. 4, lines 47-50).

Also note that recitations (i.e., "calibration" or "to provide a self-calibrating system") with respect to the manner in which a claimed apparatus is intended to be employed do not

differentiate the claimed apparatus from prior art if the prior art teaches all the structural limitations of the claim. See MPEP 2114.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Chih-Cheng Glen Kao
Primary Examiner
Art Unit 2882